
imagineit.
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6:24 pm
/bin/csh
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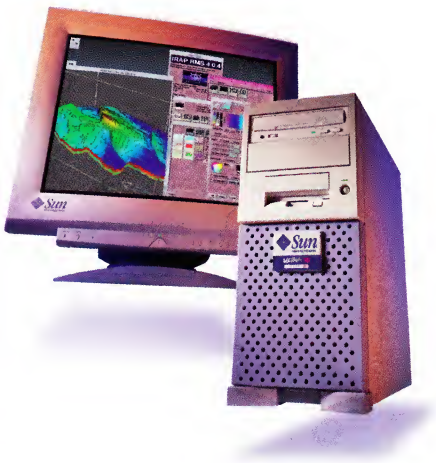
Sun
microsystems

Ultra 60 The perfect combination of raw multiprocessing performance and sophisticated next-generation technology. For animation, MCAD, simulation, geotechnical seismic analysis, and imaging.

Ultra 5 The power of an Ultra workstation for the price of a PC—the ideal system for entry electronic computer-aided design (EDA) image and media asset management, the Java™ language and other software development and testing.



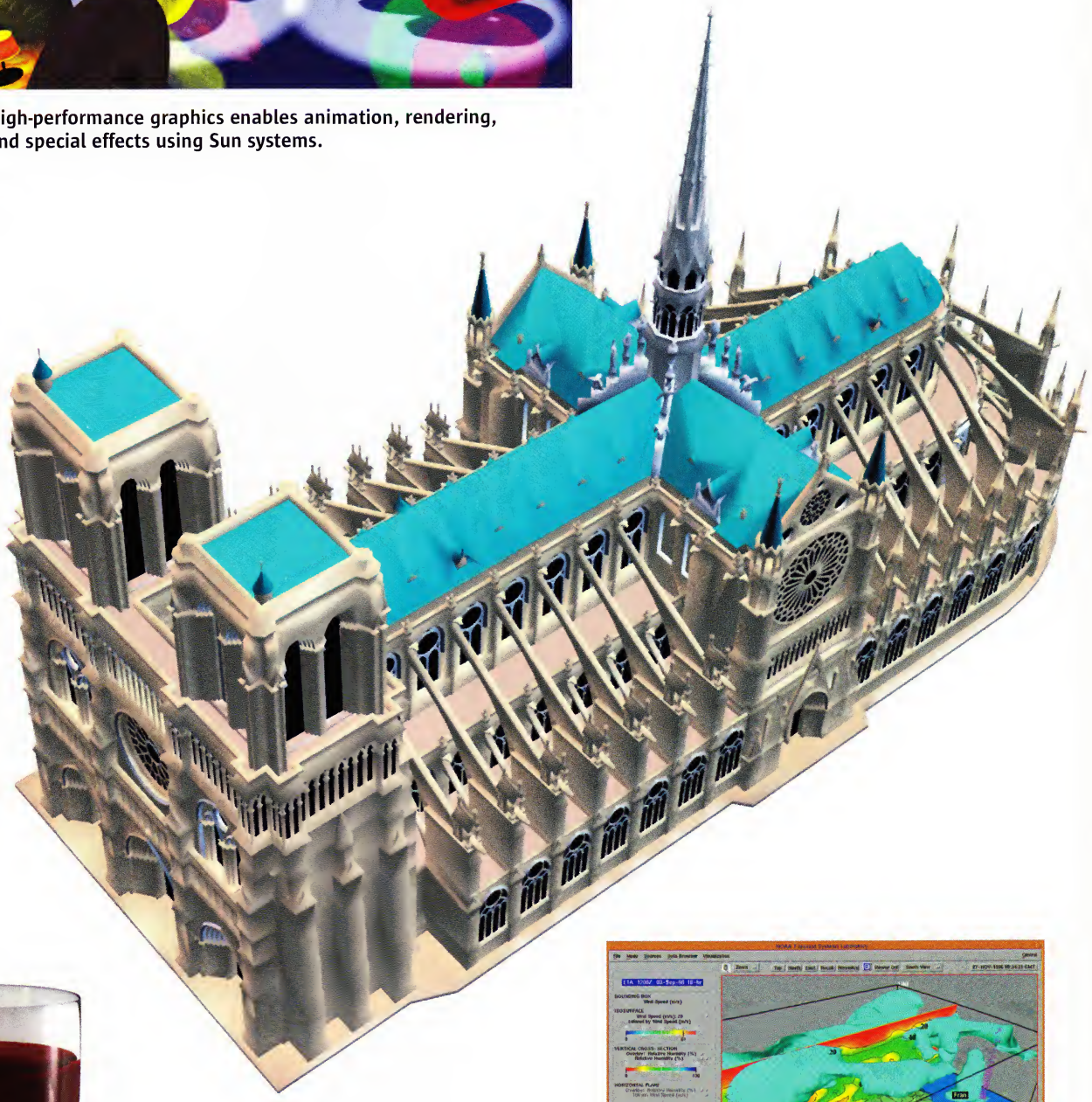
Ultra 10 A mini-tower system for 2-D/3-D digital content creation and display, mechanical computer-aided design (MCAD), financial analysis, computer-integrated manufacturing, visualization, and simulation.

create it.

If you can imagine it, you can create it with the complete line of Ultra™ Elite3D and Ultra Creator systems from Sun. They bring a new level of collaboration, visualization, and creativity to your desktop.

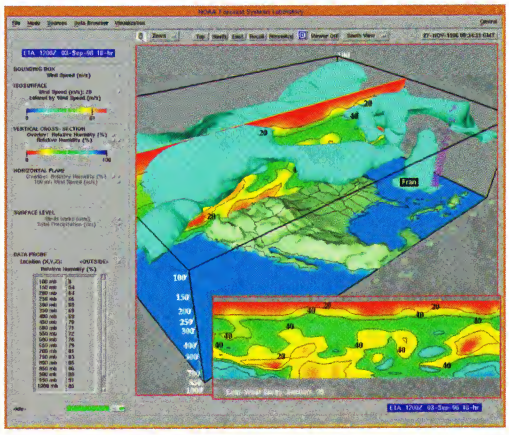
Ultra 30 Whether it's for MCAD, EDA, publishing, high-end financial services, or software development, this system delivers leading uniprocessor performance, graphics, and I/O.

High-performance graphics enables animation, rendering, and special effects using Sun systems.



Elite3D systems are a cost-effective platform for creating very large, complex 3-D architectural models, mechanical CAD drawings, and interactive walkthroughs.

Screen door transparency provides fast, order-independent rendering of transparent surfaces. Alpha transparency gives you the highest quality rendering for multiple, overlapping transparent objects. These techniques are essential for modeling and when planning the rendering of high-quality images.



The Ultra 2 and Ultra 60 system's multiprocessing gives you the ideal performance engine for high-end 3-D imaging, modeling, and visualization, such as that used by geographic information systems (GIS).

believe it.

Sun's Ultra systems deliver outstanding performance to your desktop. At the top is Elite3D—built on Creator technologies, the first frame buffer that seamlessly integrates vector graphics, 3-D solids, imaging, and video.

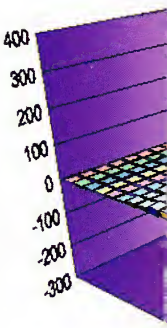
Elite3D—Sun's fastest graphics—provides transparent acceleration of 3D graphics APIs. Since it shares much of Creator's underlying architecture, your windowing, imaging, and video are comparable. In fact, performance sizzles: for 3-D graphics, Elite3D is up to four times speedier than Creator3D, delivering the power of competitive systems many times its price.

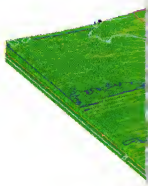
Both Elite and Creator graphics integrate high-performance graphics with Sun's family of UltraSPARC™ processors and with the memory subsystem through the Ultra Port Architecture (UPA) graphics interface, unleashing incredible 3-D power and performance.

All Elite3D's compute power is on the graphics board. Combined with the UltraSPARC Visual Instruction Set (VIS™), it delivers outstanding performance for high-end 3-D graphics and imaging. VIS also offers excellent video functionality with core support for faster MPEG1 and MPEG2 playback.

Your existing software will be transparently accelerated because Elite and Creator graphics are compatible with Sun's standard API libraries. For mainstream graphics, Creator adds another layer of investment protection because it scales with increased CPU performance.

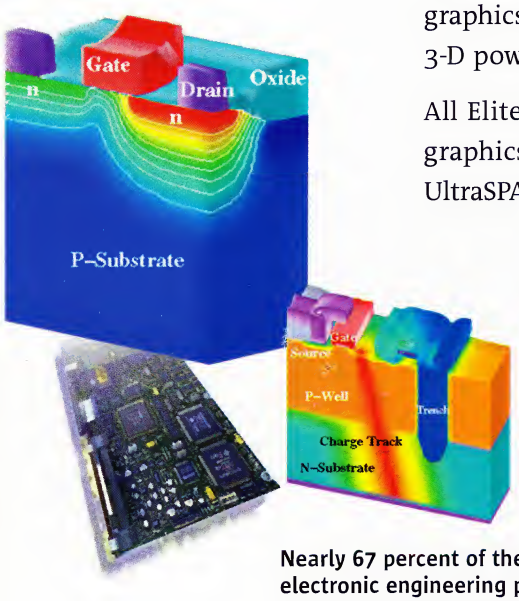
How to choose between them? For sheer speed, go with Elite3D. When lower price is more important, Creator graphics still leads the way.



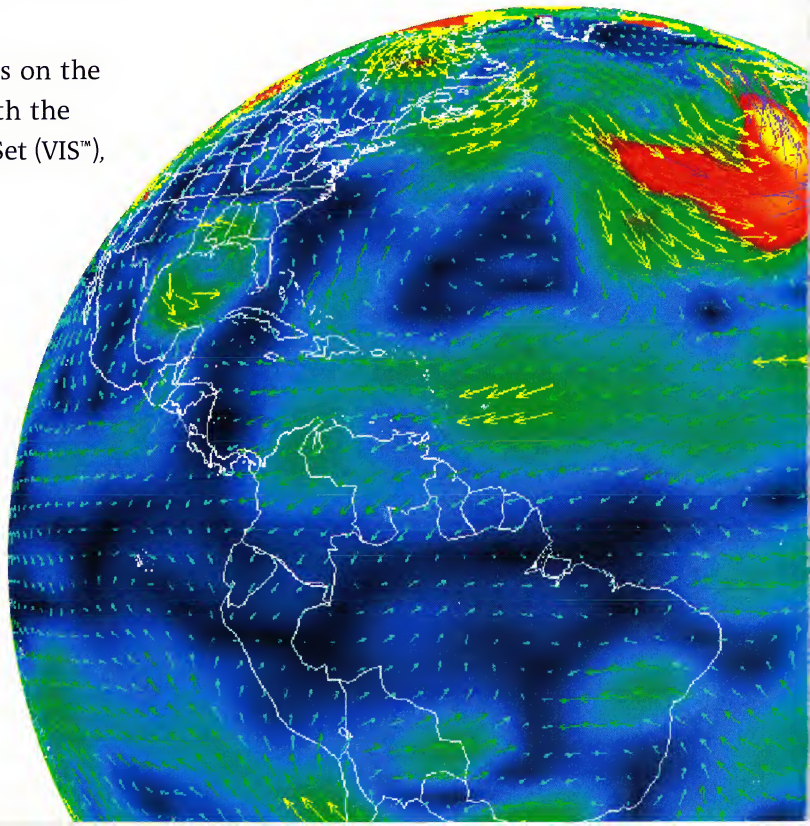


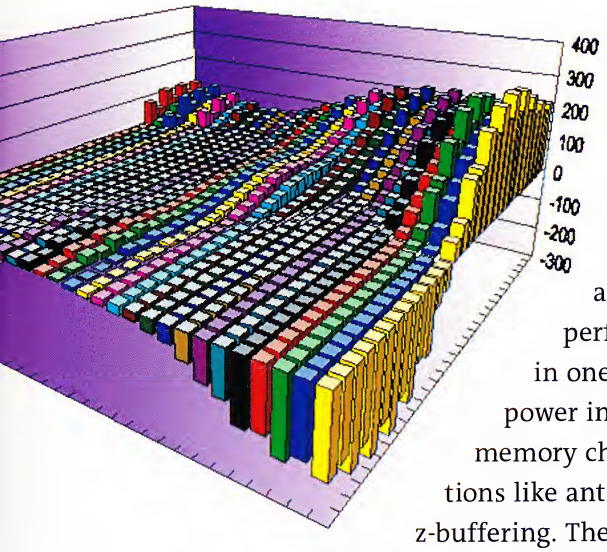
WILD IDEA, BRILLIANT EXECUTION

Sun's graphics systems replace traditional video RAM (VRAM) with 3DRAM, the first frame buffer technology that combines the cost effectiveness of



Nearly 67 percent of the industry's electronic engineering products—ASIC simulation, schematic capture, and PCB layout—are designed on Sun™ systems, taking advantage of their renowned compute power and affordable graphics.





Financial analysts use Sun systems to visually model complex data that is linked to a database for continuous updates.

DRAM, the speed of SRAM, and the video performance of VRAM in one chip. Processing power inside the 3DRAM memory chips speeds functions like anti-aliasing and z-buffering. The on-chip pixel arithmetic logic unit (ALU) boosts graphics performance by deleting processing cycles in the CPU and graphics ASICs.

INTERACTIVE 3D FOR THE ENTERPRISE

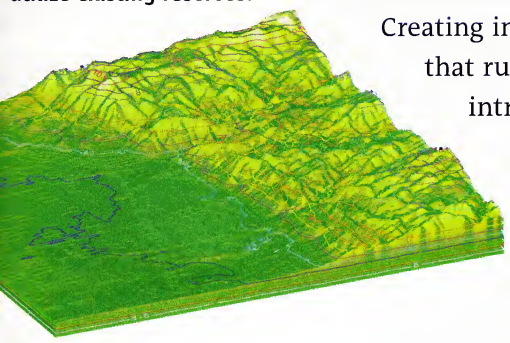
Creating interactive 3D applications that run across your enterprise, intranet, even the Internet is faster than ever. Sun's systems accelerate OpenGL®, the de facto standard programming interface for 3-D graphics hardware, so you can focus on designing the best application, not on how to port it to other platforms. Industry standards like PostScript,™ X, and KCMS are also supported.

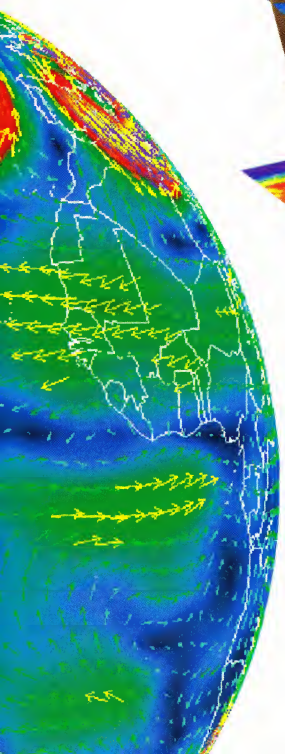
A MODEL SYSTEM FOR MOVING DATA

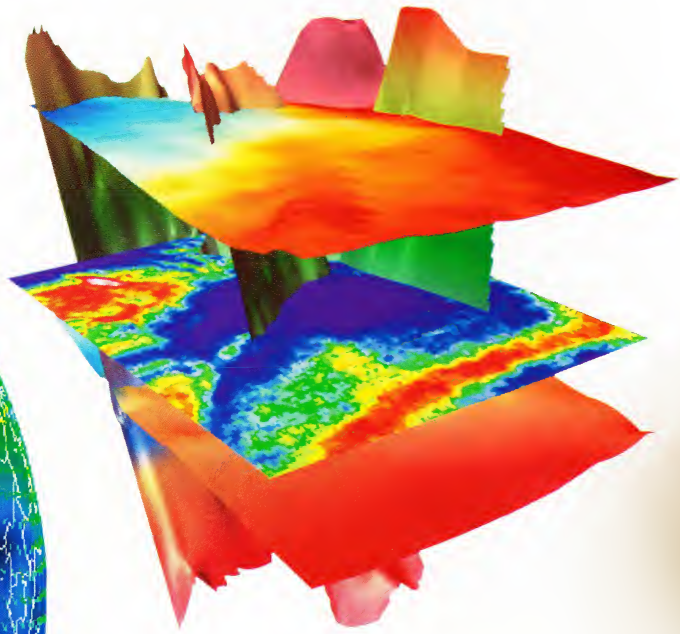
For moving data within, into, and out of the system, we included a UPA interface, capable of up to 1.96 GB/sec transfer rates, 40-MB/sec Ultra SCSI, and 100-Mb/sec Ethernet, with optional Gigabit Ethernet and other network connections.

Sun's family of graphics workstations delivers throughput, software, networking, and multiprocessing with the price/performance you've been waiting for. So now, if you can imagine it, you can create it. With Sun.

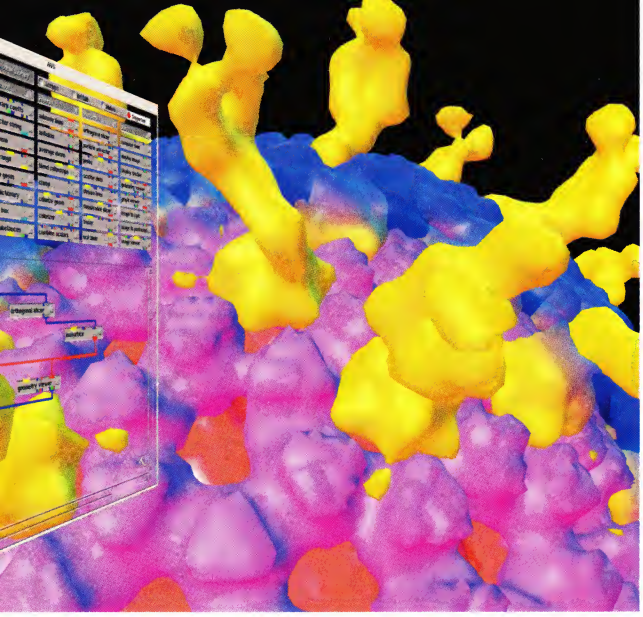
n the petroleum industry, Sun visualization systems help geologists and eophysicists sift through assive quantities of data identify the best drilling prospects and optimally utilize existing reserves.



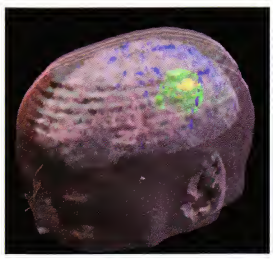


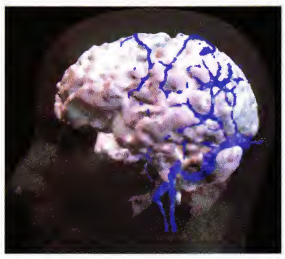


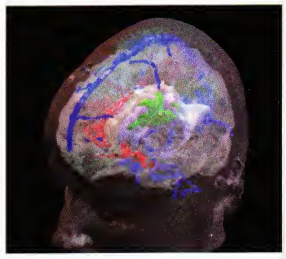
For visualizing complex data and behaviors in general science applications, such as these global wind patterns, Creator3D systems offer a well-engineered, high-performance platform.

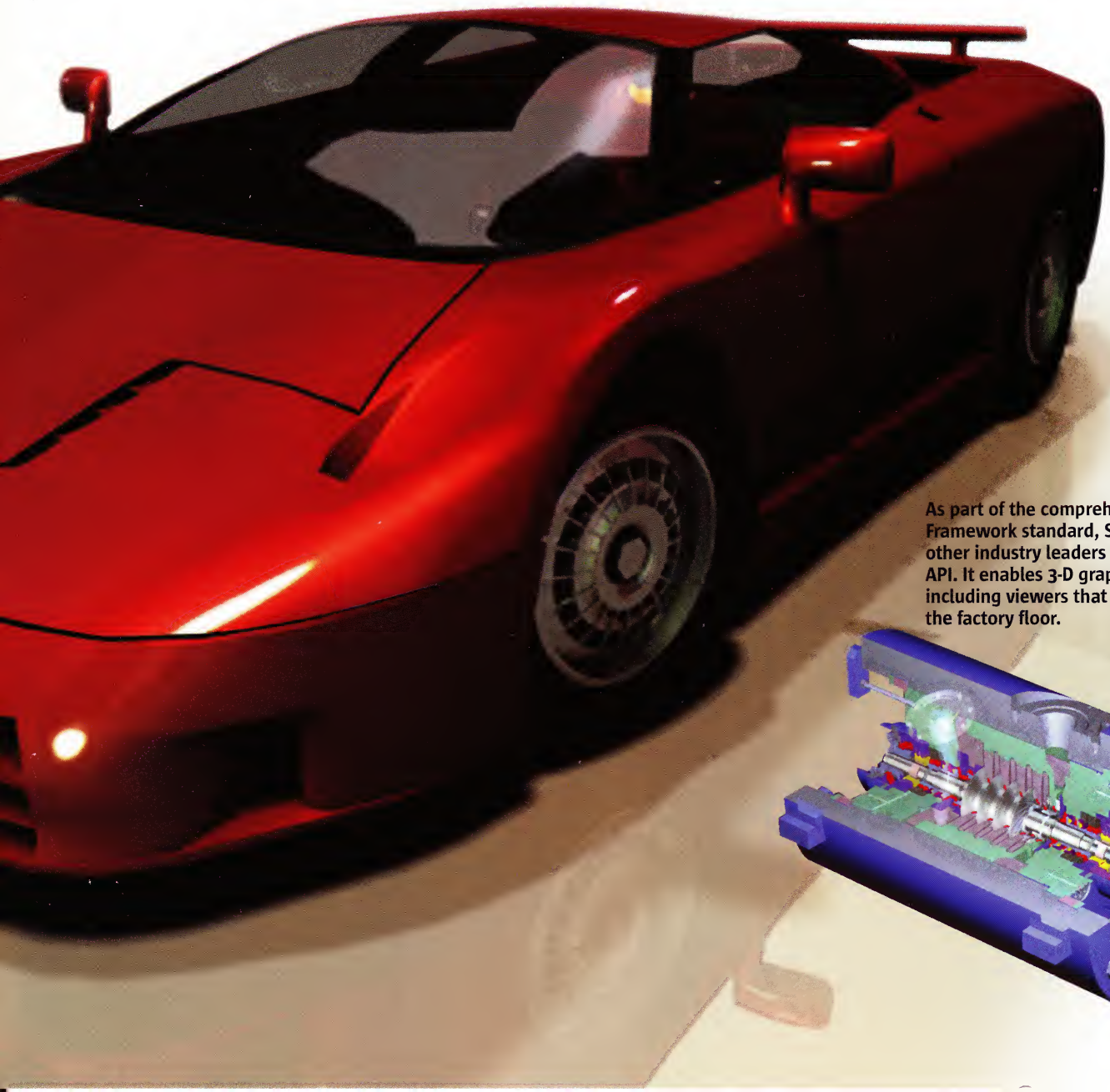


From molecular modeling and biotechnology to surgical preplanning and computer-assisted surgery in medicine, imaging applications use VIS to speed scaling, rotating, interpolation, and volumetric rendering.









As part of the comprehensive Java™ Media Framework standard, Sun is working with other industry leaders to deliver the Java 3D API. It enables 3-D graphics applications including viewers that can access data from the factory floor.

Sun Graphics Accelerator Options

	Creator/Creator3D				Elite3D m3		Elite3D m6	
	Ultra 1 Ultra 2		Ultra 10 Ultra 30 Ultra 60		Ultra 10 Ultra 30 Ultra 60		Ultra 2 Ultra 30 Ultra 60	
Resolution/ visual capabilities	NTSC, PAL timings 1152 x 900 at 66 Hz or 76 Hz 1280 x 1024 at 66 Hz or 76 Hz Stereo (960 x 680 at 112 Hz) 24-inch (HDTV-style) monitor support:* 1440 x 900 at 66 Hz or 76 Hz 1600 x 1000 at 66 Hz or 76 Hz 1920 x 1200 at 70 Hz				NTSC, PAL timings 1152 x 900 at 66 Hz or 76 Hz 1280 x 1024 at 66 Hz or 76 Hz Stereo (960 x 680 at 112 Hz)		NTSC, PAL timings 1152 x 900 at 66 Hz or 76 Hz 1280 x 1024 at 66 Hz or 76 Hz Stereo (960 x 680 at 112 Hz)	
Color planes	24 bit/24 bit double-buffer* 8-bit overlay				24 bit double-buffer 8-bit overlay		24 bit double-buffer 8-bit overlay	
Z-buffer	28 bit*				28 bit		28 bit	
	Ultra 1 200E	**Ultra 2 300 MHz**	**Ultra 10 300 MHz**	**Ultra 30 Ultra 60 300 MHz**	**Ultra 10 300 MHz**	**Ultra 30/ Ultra 60 300 MHz**	**Ultra 2 300 MHz**	**Ultra 30/ Ultra 60 300 MHz**
Xmark93	18.3/23.3	24.3/29.3	23.7/23.7	30.3/30.3	27.8	30.8	31.4	31.4
2-D vectors/sec	17M/3.5M	2.0M/4.0M	3.8M/3.8M	4.1M/4.1M	3.9M	3.9M	4.1M	4.1M
3-D vectors/sec **3-D triangles/sec[1]** **3-D quads/sec[1]**	2.4M/3.7M —/1.0M —/341K	2.8M/3.7M —/1.4M —/450K	3.6M/3.6M —/1.3M —/464K	3.7M/3.7M —/1.2M —/458K	4.9M 3M 1.2M	4.9M 3M 1.2M	8.2M 5.9M 1.2M	8.2M 5.9M 1.2M
PLBwire93 **PLBsurf93[1]**	143.2/171.4 —/226.9	174/218.8 —/308.9	204.3/204.3 —/312.6	225.0/225.0 —/317.1	247.8 438.9	272.7 458.4	372 600	372 600
CDRS-03[1] **DX-03[1]**	—/39.6 —/7.0	—/50.5 —/9.0	—/50.9 —/9.3	—/50.7 —/9.5	75 14.3	75 14.3	130 14.2	130 14.2
Imaging Performance **Scale** **Convolve (3 x 3)** **Rotate** *(Mega pixels/sec)* *(8-bit/32-bit)*	207/37 25.2/3.0 69.6/28.9	624/41 39.2/4.8 106/46.6	203/38 37/4 81/35	611/50 40.1/4.7 104.0/46.5	203/41 37/4.8 81/46.6	N/Av/5.0 N/Av/4.7 N/Av/46.5	N/Av/41 N/Av/4.8 N/Av/46.6	N/Av/50 N/Av/4.7 N/Av/46.5
Special features	Line antialiasing, per-pixel depth-cueing, alpha/screen door, transparency, acceleration for text, 2D windowing, VIS accelerated imaging and texture mapping, stereo imaging output Creator3D included: 3D acceleration, gouraud shading				Gouraud shading, line antialiasing, per-pixel depth-cueing, alpha/screen transparency, acceleration for text, windowing, 2D/3D. VIS accelerated imaging and texture mapping, stereo			
Displays	19, 21, and 24 inch*				19 and 21 inch			

Software Interfaces: OpenGL, XGL,™ XIL,™ SunPHIGS,™ PEXlib

Notes: *Creator3D only: Creator3D supports 24 inch displays up to 1920 x 1200 at 70 Hz, 24-bit single-buffered
IMPORTANT: Performance numbers are preliminary and are subject to change. Please contact your local sales offices or www.sun.com web site for up-to-date information

Footnotes:
[1]Creator3D and Elite 3D graphics only
2-D vectors: 10 pixels long, X11 perf numbers
3-D vectors: 10 pixels long, depth cued, clip tested, perspective projection, solid line through XGL
3-D triangle mesh: 50 pixel triangle mesh, one light source
3-D quads: 100 pixel, independent quadralaterals, with one directional light source
Both 3-D mesh and quads are gouraud shaded, randomly oriented, transformed, clip tested, with perspective projection and Z-buffered via XGL

HEADQUARTERS

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Sun microsystems

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